REMARKS

Claims 1, 6, 7 and 12 have been amended. Claims 1, 3-7, and 9-12 are pending and under consideration. Claims 1, 6, 7 and 12 are the independent claims. No new matter is presented in this Amendment.

OBJECTION TO THE DRAWINGS:

The drawings stand object to as failing to show every feature of the invention as specified in the claims. In particular, the Examiner states that the "offset region" recited in independent claims 1 and 7 is not shown and that FIGS. 5 and 6 only illustrate LDD regions.

Applicants respectfully traverse this assertion for at least the following reason. As noted in paragraph [0029] of the specification, it is recited that FIG. 5 is a cross sectional view of a thin film transistor having an offset region or an LDD region structure. Furthermore, paragraph [0030] of the specification recites that a thin film transistor includes an offset region or an LDD region. Accordingly, it is clear from the specification that the region II illustrated in FIGS. 5 and 6 can be either an LDD region or an offset region. Therefore, Applicants respectfully assert that the drawings clearly illustrate every feature recited in the claims, and therefore respectfully request that the objection to the drawings be withdrawn.

Furthermore, on page 8 of the Office Action, the Examiner states that "The latter argument is contradictory to Applicants' original disclosure in paragraph [0028] of the current Application, which states that "[f]furthermore, off current, that is, leakage current, can be reduced in a thin film transistor by adding an LDD region to the offset region through low density ion doping of impurities". Applicants respectfully traverse such assertion for at least the following reason. Referring to the specification of the application, three exemplary devices are disclosed. One exemplary device includes the LDD region and the offset region, as noted by the Examiner. The other devices include the LDD region or the offset region. In other words, the specification discloses three examples, and claim 1 refers to two of the exemplary devices, including the LDD region or the offset region. Therefore, the Office Action's assertion that the specification is contradictory is not accurate. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

OBJECTIONS TO THE CLAIMS:

Claims 5, 6, 11 and 12 are objected to because of informalities listed on page 3 of the outstanding Office Action.

Applicants have amended the claims in order to correct the informalities noted by the Examiner. Accordingly, Applicants respectfully request that the objection to the claims be withdrawn.

REJECTIONS UNDER 35 U.S.C. §112:

Claims 1, 3-5, 7 and 9-11 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Regarding the rejection of independent claims 1 and 7, the Office Action states that Applicants did not originally disclose that a width of the offset region included in an activation layer is smaller than a distance between the primary crystal grain boundaries and therefore, the claims fail to comply with the written description requirement.

Applicants respectfully traverse such assertions for at least the following reasons. As noted above, at paragraphs [0029] and [0030] of the original specification, it is disclosed that the thin film transistor includes an offset region or an LDD region. Accordingly, region II illustrated in FIGS. 5 and 6 can be either an LDD region or an offset region. In other words, the LDD region can be replaced by an offset region and vice versa. Therefore, although not explicitly stated in the specification that a width of the offset region is smaller than a distance between the primary crystal grain boundaries, this feature is inherent from the teachings of paragraphs [0029], [0030], and further from paragraph [0035] where it is stated that the width between the primary crystal grain boundaries can be adjusted so that the primary crystal grain boundaries are not formed in the LDD region.

Accordingly, Applicants respectfully assert that claims 1 and 7 clearly comply with the written description requirement, and therefore request that the rejection of claims 1 and 7 be withdrawn.

Regarding the rejection of claims 3-5 and 9-11, it is noted that these claims depend from

claim 1 and 7 and were rejected due to their dependency from claims 1 and 7. However, as noted above, claims 1 and 7 clearly comply with the written description requirement and therefore, Applicants respectfully request that the rejection of claims 3-5 and 9-11 also be withdrawn.

Claims 1, 3-5, 7 and 9-11 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding the rejection of independent claims 1 and 7, the Office Action states that it is not clear whether Applicants claim "an offset region having no doping," or an offset region not intentionally doped or lightly doped. Applicants respectfully traverse this rejection for at least the following reasons.

Applicants note that "the offset region" refers to a region into which impurities are not doped, other than a channel region in an active layer formed of polysilicon. Therefore, such a term is a general term which is commonly used in the field and one or ordinary skill in the art would readily recognize the term and its definition. However, in order to further clarify this matter and not for purposes related to patentability, Applicants have amended independent claims 1 and 7 to remove the term having no doping.

Accordingly, Applicants respectfully assert that claims 1 and 7, fully comply with the requirement of 35 U.S.C. §112, second paragraph, and therefore request that the rejection of claims 1 and 7 be withdrawn.

Regarding the rejection of claims 3-5 and 9-11, it is noted that these claims were rejected because of their dependency from claims 1 and 7. However, as noted above, claims 1 and 7 have been amended and fully comply with the requirements of 35 U.S.C. §112, second paragraph. Accordingly, Applicants respectfully request that the rejection of dependent claims 3-5 and 9-11 also be withdrawn.

REJECTIONS UNDER 35 U.S.C. §102:

Claims 1, 3-7 and 9-12 are rejected under 35 U.S.C. §102(b) as being anticipated by Oka et al. (U.S. Patent No. 6,184,541).

Regarding the rejection of independent claim 1, it is noted that claim 1, as amended, recites a thin film transistor (TFT) comprising: a channel region having a plurality of crystal grain boundaries; source and drain regions respectively formed at opposite ends of the channel region; and offset regions respectively formed between the source and drain regions and the channel region, wherein the thin film transistor is formed so that the primary crystal grain boundaries of a polysilicon substrate are not positioned in the offset regions, and wherein a width of each one of the offset regions is smaller than a distance between the primary crystal grain boundaries formed in the channel region.

The Office Action relies on Oka for a teaching of some of the features of independent claim 1. In particular, the Office Action states that Oka discloses a thin film transistor comprising an offset region (region between rightmost primary crystal grain boundary in channel region 8 and region 4) and a plurality of primary crystal grain boundaries and cites column 3, lines 36-37 for such teachings. Applicants respectfully traverse such assertions for the following reasons. As noted in column 3, lines 37-49, Oka discloses a source 6 and a drain 7 each of them having an LDD structure that has a low concentration region 4 and a high concentration region 5. Oka further discloses a channel region 8 formed between the source 6 and the drain 7. Finally, Oka discloses grain boundaries 2 formed in the LDD structure and in the channel region 8. However, Applicants respectfully assert that nowhere in the specification does Oka teach or suggest offset regions.

As noted in MPEP 2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). In the instant case, the offset regions are neither expressly nor inherenlty taught by Oka.

Accordingly, Applicants respectfully assert that Oka fails to teach or suggest, at least, this novel feature of independent claim 1.

Regarding the rejection of independent claims 6, 7 and 12 it is noted that these claims recite some substantially similar features as claim 1, such as the offset regions. Thus, the rejection of these claims is also traversed for similar reasons as set forth above.

Furthermore, with respect to the rejection of claim 6, it is noted that claim 6 recites a thin film transistor (TFT) comprising: a channel region; source and drain regions respectively formed

at opposite sides of the channel region; a lightly doped drain (LDD) region or offset regions respectively formed at opposite sides of the channel region and between the source and drain regions; and a plurality of primary crystal grain boundaries, wherein the thin film transistor is formed so that the primary crystal grain boundaries of a polysilicon substrate are positioned in the channel, source and drain regions but not positioned in the LDD or offset region, and wherein a width of the LDD region or offset regions is less than a distance between two adjoining primary crystal grain boundaries.

As noted in FIG. 1d of Oka, the length of the LDD region is longer than the distance between the boundaries of crystal grains shown below.

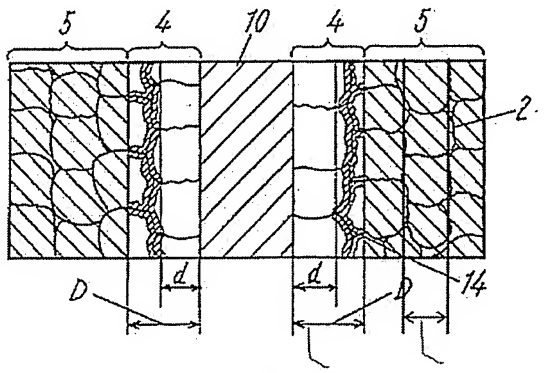

Fig. 1d of Oka

The Examiner notes that the mark 'd' of Oka corresponds to a length of the LDD region. However, Applicants note that 'd' is an effective length of the LDD region which is different from a general length of the LDD region.

According to the specification of Oka, the effective length of the LDD region is written to distinguish it from the length of the LDD region. Generally the length of the LDD region refers to an actual length of a doped region, while the effective length of the LDD region refers to an electronic length of the LDD region. One of ordinary skill in the art uses the term 'length of the LDD region' to refer to the general length of the LDD region. As noted in the reference, Oka distinguishes the term 'effective length of the LDD region' from 'length of the LDD region' (column 2, lines 15-19). Thus, Oka does not disclose that "a width of the LDD region or offset regions is less than a distance between two adjoining primary crystal grain boundaries."

Accordingly, the rejection of claim 6 should be withdrawn.

Accordingly, Applicants respectfully assert that the rejection of claims 1, 6, 7 and 12 under 35 U.S.C. § 102(b) should be withdrawn because Oka fails to teach or suggest the novel features of independent claims 1, 6, 7 and 12.

Furthermore, Applicants respectfully assert that the rejection of dependent claims 3-5 and 9-11 under 35 U.S.C. §102(b) should be withdrawn at least because of their dependency from claims 1 and 7, and the reasons set forth above, and because the dependent claims include additional features which are not taught or suggested by the prior art. Therefore, it is respectfully submitted that claims 3-5 and 9-11 also distinguish over the prior art.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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